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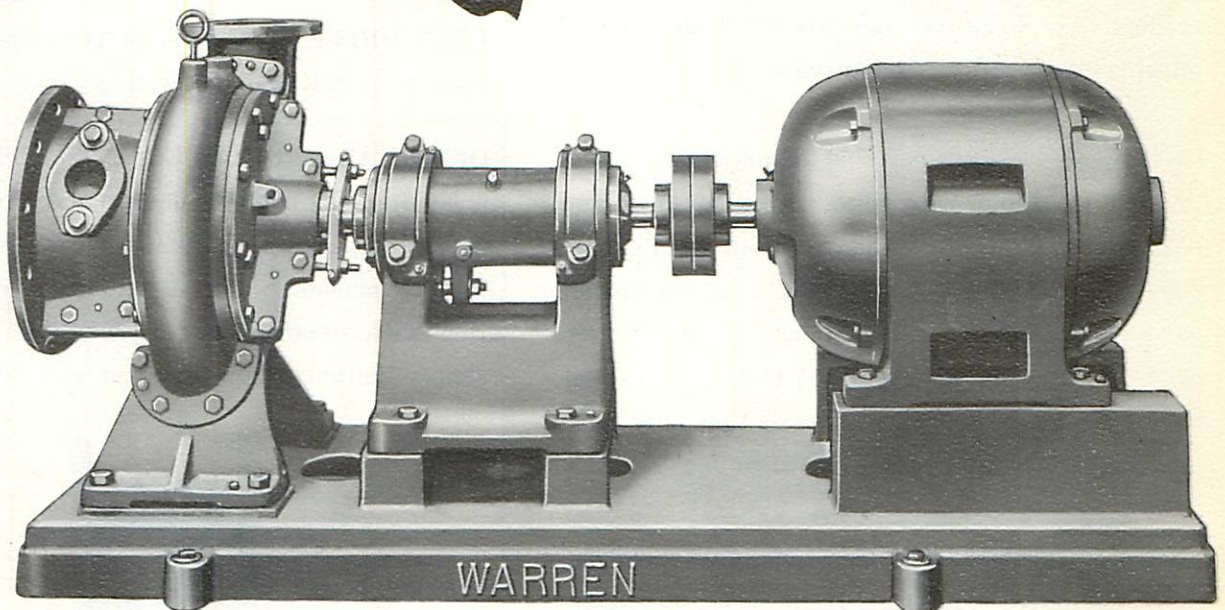
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WARREN

Stock Pumps

for Pulp and Paper Mills

Type SOD



WARREN PUMPS, INC.

WARREN, MASSACHUSETTS
PEACE DALE, RHODE ISLAND



CENTRIFUGAL

RECIPROCATING

SCREW AND GEAR PUMPS

Type SOD Pump Specifications

CASING — Diagonally split type with pump feet and vertical discharge in bottom half. Suction head, head cover, and bearing pedestal are also diagonally split to allow removal of rotor without disturbing piping or driver. (The type 2-SOD-11 casing is solid.)

SUCTION HEAD — Several sizes of suction heads are available for proper flow velocities of various types and densities of stock. Most suction heads have large, easy-opening hand holes with covers.

IMPELLER — Open, single end suction, non-binding type. Several types, 2 to 6 vanes, are available for most sizes for proper pump selections. Warren type SOD impellers have eductor vanes on back of impeller to help prevent stock buildup, reduce thrust forces and reduce pressure on the stuffing box. Stock passages are hand filed and all impellers are statically balanced.

LINERS — Easily renewable diagonally split suction and head liners are bolted to suction head and head cover. They are standard on all sizes except 2-SOD-11, 2-SOD-14 and 3-SOD-11 which do not have liners. (2-SOD-14 with optional 8" suction head has suction liner only. 4-SOD-12 does not have head liner, but does have suction liner with optional 10" or 12" suction head.)

SHAFT — Ample diameters for rigidity and reserve strength for all loads from maximum capacity to shut-off.

SHAFT SLEEVE — Protects shaft from wear by packing and can be replaced inexpensively when necessary.

BEARINGS — Ball bearings are standard. Thrust bearing is duplex angular contact type. Bearings can be oil or grease lubricated.

BEARING PEDESTAL — Unit type, with removable cap. Bearing end covers form close fit with shaft, and along with slinger, makes bearing housing moisture and dirt proof.

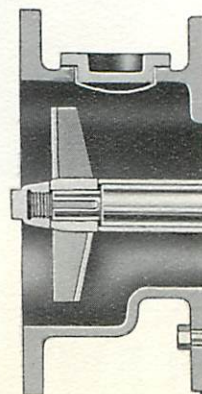
STUFFING BOX AND GLAND — Stuffing box has ample number of packing rings, water seal ring and tapped connection for external water seal. Gland is split-type.

FLEXIBLE COUPLING — Various types of flexible couplings can be furnished.

BASEPLATE — Cast iron to resist corrosion, box type to resist distortion. Grout holes are furnished.

BELT DRIVE — All type SOD pumps can be furnished for belt drive as well as direct drive.

OPTIONAL PROPELLER IN SUCTION — Propeller-Impeller combination produces constant level in Regulating or Stuff Box regardless of chest level. Propeller is designed to operate in conjunction with impeller, and is mounted on shaft at proper distance from impeller entrance.



TWO TO SIX VANE OPEN IMPELLERS

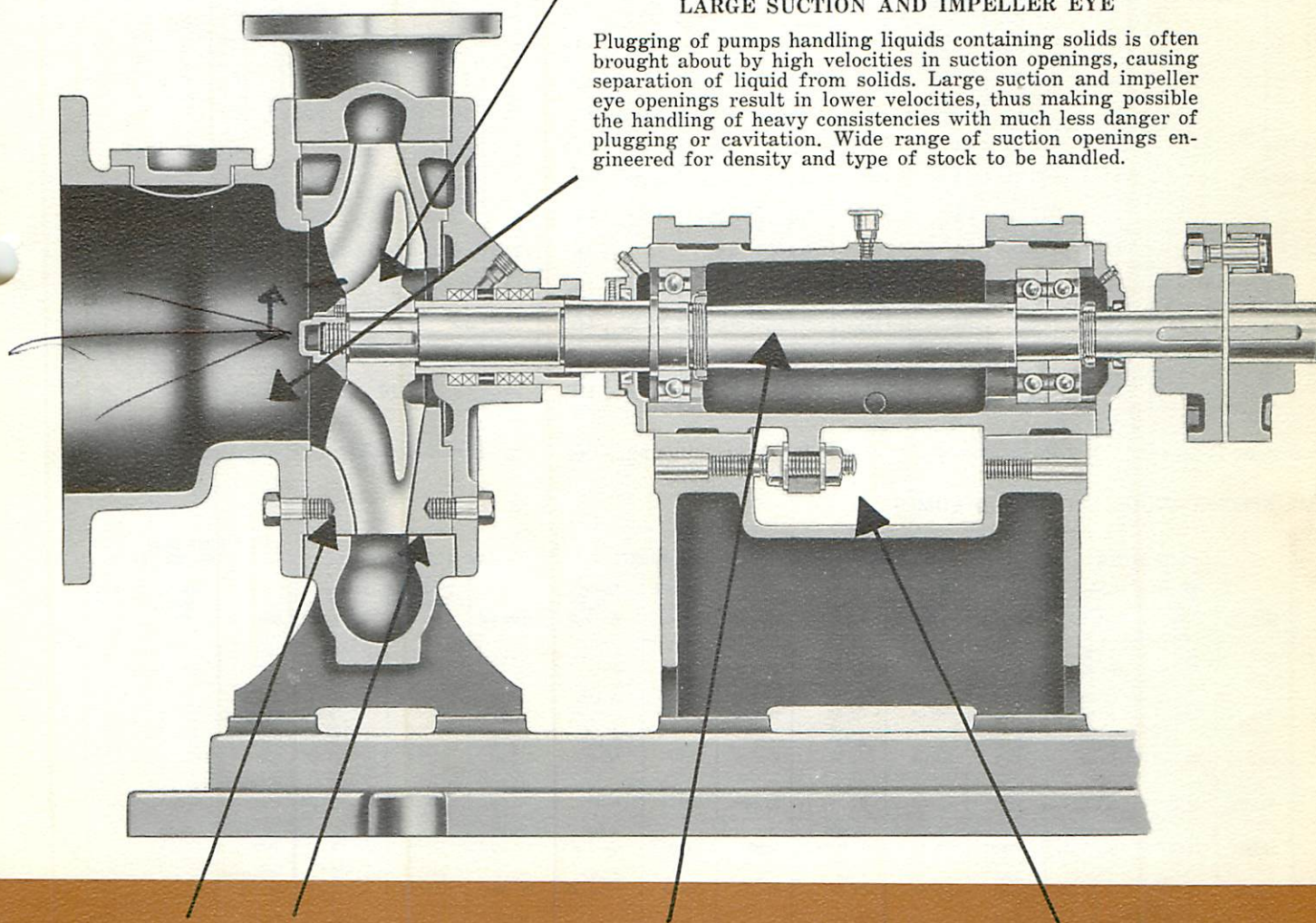
The heart of a pump is the IMPELLER, and for most sizes of Warren type SOD Stock Pumps FIVE different impellers are available, each designed specifically for five different operating services, yet they all fit the same size and type of pump. Each of these impellers "washes its own back" . . . in other words, Eductor Vanes, pioneered by Warren, keep the space behind the impeller pumped free of fibre or grit, reduce pressure on the stuffing box and insure long packing life.



Back of typical Warren Impeller showing Eductor Vanes

LARGE SUCTION AND IMPELLER EYE

Plugging of pumps handling liquids containing solids is often brought about by high velocities in suction openings, causing separation of liquid from solids. Large suction and impeller eye openings result in lower velocities, thus making possible the handling of heavy consistencies with much less danger of plugging or cavitation. Wide range of suction openings engineered for density and type of stock to be handled.



RENEWABLE LINERS

Accurately machined to the contour of the impeller surface and securely bolted to suction head and head cover, these liners protect casing; also being divided they are easily renewable without disturbing piping or rotor.

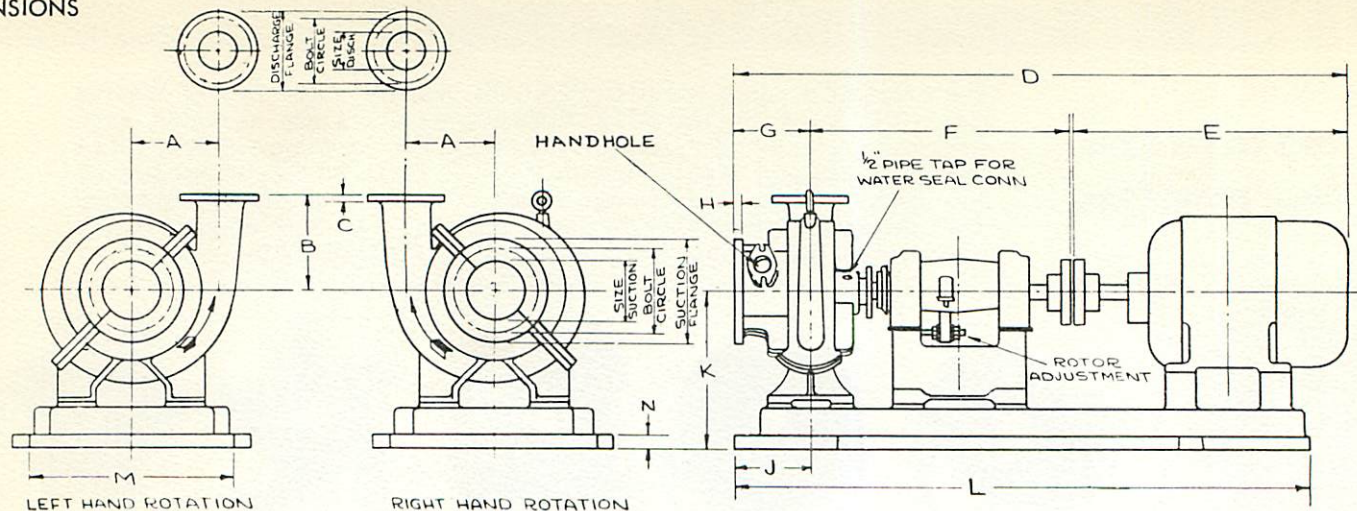
STRONG SHAFT

Shafts have a high factor of safety to withstand the severe services under which hundreds of these pumps are successfully operating. Shaft sleeves provide protection from wear at stuffing box. Interchangeable on many sizes.

ADJUSTMENT FOR WEAR

Inevitable wear increases clearance between open impeller and suction liner, reducing capacity, head and efficiency. Adjustment to reduce this clearance is provided by adjustment screw. This extends periods between replacement of liners.

DIMENSIONS



SIZE & TYPE	125 # ASA STD. FLANGES		A	B	C	D	E	F	G	H	J	K	L	M	N	# & Size Foundation Bolt Holes
	DISCHARGE	SUCTION														
2-SOD-11	2	4	6 ³ / ₄	8	⁵ / ₈	60	24	29 ¹ / ₂	6 ¹ / ₂	³ / ₄	7 ¹ / ₂	12 ¹ / ₂	60	23 ³ / ₄	1 ¹ / ₄	4- ⁷ / ₈
2-SOD-14	2	8	9	9 ¹ / ₂	⁵ / ₈	67 ⁷ / ₈	28 ¹ / ₄	28 ⁷ / ₈	10 ⁵ / ₈	1	9 ¹ / ₂	15	64	21	1 ¹ / ₂	4-1
3-SOD-11	3	8	8 ¹ / ₄	9 ¹ / ₂	³ / ₄	66 ³ / ₈	26 ¹ / ₂	28 ⁷ / ₈	11	⁷ / ₈	8	14	65	21 ³ / ₄	1 ¹ / ₂	4-1
3-SOD-14	3	8	9 ³ / ₄	10 ¹ / ₂	³ / ₄	68 ⁵ / ₁₆	27 ³ / ₁₆	30	11	1	9	15	64	21	1 ¹ / ₂	4- ⁷ / ₈
4-SOD-12	4	10	9 ¹ / ₄	10 ¹ / ₂	³ / ₄	67 ¹ / ₂	27 ³ / ₈	28 ⁵ / ₈	11 ¹ / ₂	1	9 ¹ / ₂	15	64	24 ³ / ₄	1 ¹ / ₂	4-1
4-SOD-16	4	12	10 ³ / ₄	12 ¹ / ₂	⁷ / ₈	78 ⁷ / ₁₆	31 ¹ / ₂	33 ¹ / ₂	13 ¹ / ₄	1	11	20 ¹ / ₂	74	26 ¹ / ₂	2	4-1
5-SOD-15	5	12	11 ¹ / ₄	12 ¹ / ₂	⁷ / ₈	81 ⁵ / ₁₆	35 ⁵ / ₈	33 ¹ / ₂	12	1	10	20 ¹ / ₂	74	26 ¹ / ₂	2	4-1
5-SOD-19	5	12	12 ¹ / ₂	14	⁷ / ₈	85 ¹ / ₈	38 ⁵ / ₁₆	34 ⁷ / ₈	11 ³ / ₄	1	10 ¹ / ₂	22 ¹ / ₂	80	26	3	4-1
6-SOD-15	6	12	11 ¹ / ₄	13 ¹ / ₂	¹⁵ / ₁₆	83 ³ / ₈	36 ⁵ / ₁₆	34 ⁷ / ₈	12	1	10 ¹ / ₂	22 ¹ / ₂	80	26	3	4-1
6-SOD-19	6	12	12 ³ / ₄	15	1	88 ¹ / ₄	41 ⁵ / ₁₆	34 ⁷ / ₈	11 ⁷ / ₈	1	8	22 ¹ / ₂	80	26	3	4-1
8-SOD-17	8	16	13 ¹ / ₂	16	1	93 ⁷ / ₈	43 ⁵ / ₁₆	34 ⁷ / ₈	15 ¹ / ₂	1 ¹ / ₄	9 ¹ / ₂	26 ¹ / ₂	84	33 ¹ / ₂	2 ¹ / ₂	4-1
8-SOD-22	8	16	16	17 ¹ / ₂	1	95 ¹ / ₂	40 ³ / ₈	40 ¹ / ₁₆	14 ⁷ / ₈	1 ¹ / ₄	11 ¹ / ₂	30	84	33 ¹ / ₂	2 ¹ / ₂	4-1
10-SOD-17	10	16	13 ¹ / ₂	20	¹ / ₁₆	94 ⁷ / ₈	43 ⁵ / ₁₆	35 ³ / ₈	16	1 ¹ / ₄	14	27 ¹ / ₈	91	34	2	6-1
10-SOD-24	10	16	17 ¹ / ₂	19	1	108 ¹ / ₈	50 ⁵ / ₁₆	40 ¹ / ₁₆	17 ⁵ / ₈	1 ¹ / ₄	11 ¹ / ₂	26 ¹ / ₂	96	33 ¹ / ₂	2 ¹ / ₂	6-1
12-SOD-24	12	16	19	20	¹ / ₈	116 ¹ / ₈	57 ³ / ₈	40 ¹ / ₂	18 ¹ / ₈	1 ¹ / ₄	13	29	106	38	3	8-1 ¹ / ₂

All dimensions in inches

Dimensions not to be used for construction purposes

Dimensions D and E vary with type of motor

MATERIAL SPECIFICATIONS — TYPE SOD PUMPS

Part	BRONZE FITTED			ALL IRON			ALL BRONZE			ALL STAINLESS STEEL			CAST IRON, #316 ST. STL. FITTED		
	Material	Warren Spec. No.	Equiva- lent A.S.T.M.	Material	Warren Spec. No.	Equiva- lent A.S.T.M.	Material	Warren Spec. No.	Equiva- lent A.S.T.M.	Material	Warren Spec. No.	Equiva- lent A.S.T.M.	Material	Warren Spec. No.	Equiva- lent A.S.T.M.
Casing & Heads	Cast Iron	A010A	A-48 C1.35	Cast Iron	A010A	A-48 C1.35	Bronze	C040A	B-143 Alloy 1B	#316 St. Stl.	B407A	A-296 Gr. CF-8M	Cast Iron	A010A	A-48 C1.35
Impeller	Bronze	C040A	B-143 Alloy 1B	Cast Iron	A010A	A-48 C1.35	Bronze	C040A	B-143 Alloy 1B	#316 St. Stl.	B407A	A-296 Gr. CF-8M	#316 St. Stl.	B407A	A-296 Gr. CF-8M
Liners	Cast Iron	A010A	A-48 C1.35	Cast Iron	A010A	A-48 C1.35	Bronze	C040A	B-143 Alloy 1B	#316 St. Stl.	B407A	A-296 Gr. CF-8M	Cast Iron	A010A	A-48 C1.35
Water Seal Ring	Bronze	C060A	B-62	Cast Iron	A010A	A-48 C1.35	Bronze	C060A	B-62	#316 St. Stl.	B407A	A-296 Gr. CF-8M	Cast Iron	A010A	A-48 C1.35
Shaft	Steel	F060A	A-107 Gr. 1141	Steel	F060A	A-107 Gr. 1141	Steel	F060A	A-107 Gr. 1141	#316 St. Stl.	G232A	A-276	Steel	F060A	A-107 Gr. 1141
Shaft Sleeve	Bronze	C040A	B-143 Alloy 1B	Cast Iron	A010A	A-48 C1.35	Bronze	C040A	B-143 Alloy 1B	#316 St. Stl.	B407A	A-296 Gr. CF-8M	#316 St. Stl.	B407A	A-296 Gr. CF-8M
Gland	Cast Iron	A010A	A-48 C1.35	Cast Iron	A010A	A-48 C1.35	Bronze	C060A	B-62	#316 St. Stl.	B407A	A-296 Gr. CF-8M	Cast Iron	A010A	A-48 C1.35

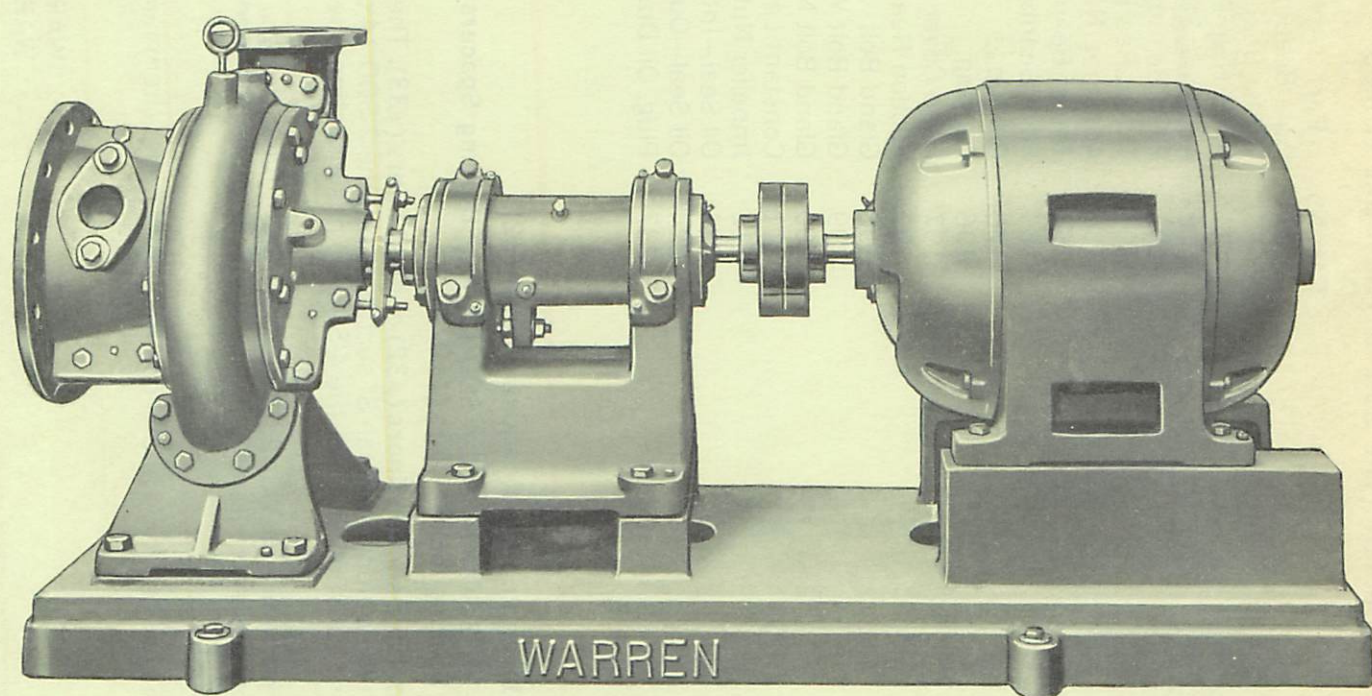
Note: Other materials can be furnished for special services.

WARREN PUMPS, INC., WARREN, MASSACHUSETTS • Peace Dale, Rhode Island

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PARTS LIST FOR WARREN TYPE SOD CENTRIFUGAL PUMPS



WARREN PUMPS, INC.
WARREN, MASSACHUSETTS



CENTRIFUGAL
RECIPROCATING
SCREW AND
GEAR PUMPS

PARTS LIST—WARREN TYPE SOD CENTRIFUGAL PUMPS

Part No.	Part	Part No.	Part
1	Case	57	Plain Bearing
2	Cover *(1)	58	Thrust Bearing
5	Gland	94	Hand Hole Plate
6	Shaft	102	Adjusting Stud
7	Impeller	107	Plain Bearing Lockwasher *(2)
9	Shaft Sleeve	107A	Thrust Bearing Lockwasher
10	Water Seal Ring	136	Adjusting Nut
11	Slinger	168	Thrust Bearing Head Gasket
19	Plain Bearing Locknut *(2)	169	Plain Bearing Head Gasket
19A	Thrust Bearing Locknut	176	Oil Cup
26	Coupling Key	196	Packing
27	Impeller Key	197	Head Cover Gasket
30	Suction Head	197A	Suction Head Gasket
31	Head Cover	198	Gland Bolt
32	Suction Liner *(3)	199	Gland Bolt Washer
33	Head Liner *(3)	200	Gland Bolt Nut
34	Impeller Nut	211	Constant Level Oiler
36	Pedestal	212	Impeller Nut Set Screw
38	Pedestal Cap	224	Oil Seal—Inboard End
53	Bearing Housing	224A	Oil Seal—Outboard End
54	Plain Bearing Head	287	Plug, Oil Drain
56	Thrust Bearing Head		

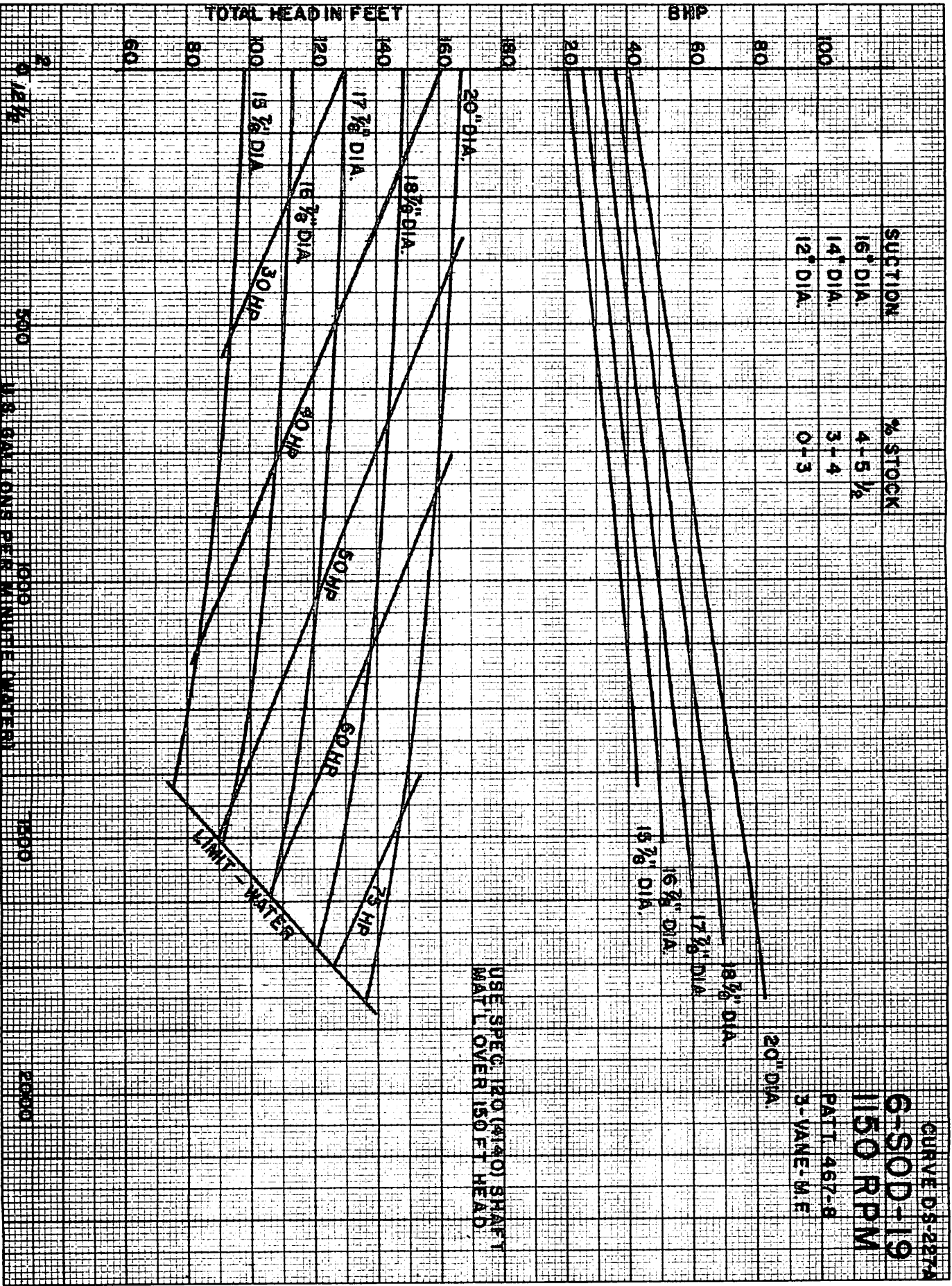
* Not required for all sizes.

- (1) The 2-SOD-11 has a solid **case (#1)**, and does not require a **cover (#2)**.
- (2) The 2-SOD-11, 2-SOD-14, 3-SOD-11, 3-SOD-14 and 4-SOD-12 have **Bearing Spacers (#52)** rather than **plain bearing locknuts (#19)** and **plain bearing lockwashers (#107)**.
- (3) The 2-SOD-11 and 3-SOD-11 do not have **suction liners (#32)** or **head liners (#33)**. The 2-SOD-14 and 4-SOD-12 do not have **head liners (#33)**. When equipped with an 8" suction head, the 2-SOD-14 does have a **suction liner (#32)**. When equipped with a 10" or 12" suction head, the 4-SOD-12 has a **suction liner (#32)**.

This parts list and drawing is typical of nearly all Warren Type SOD Centrifugal Pumps. Construction may vary in older pumps or because of special design requirements for unusual pumping conditions, piping and drive arrangements, etc.

When ordering parts, please be sure to give size, type and serial number of pump (from nameplate).

WARREN PUMPS, INC.
WARREN, MASSACHUSETTS



WARREN PUMPS, INC., WARREN, MASS.
 Open Impeller, End Suction Pumps
 6-SOD-19 Curve #DS-227A 1150 RPM

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